

CLAIMS:

1. A threadless cap for closing a potable liquid bottle, the potable liquid bottle having a neck with an upper edge defining a discharge opening, said threadless
5 cap comprising:
 - a) a lid for overlying and sealingly engaging the upper edge;
 - b) said lid including a tension ring for retaining said cap on the neck of the bottle, said tension ring having an inwardly extending rib for engaging the neck of the bottle;
 - 10 c) a skirt depending from said lid, said skirt including a line of weakness facilitating a manual tear of said skirt; and
 - d) a tear stop at a location intersecting a line of tear propagating as a result of a manual pull applied on said skirt, said tear stop preventing the line of tear to propagate beyond said tear stop.
- 15 2. A threadless cap as defined in claim 1, wherein said tear stop includes a thickened portion on said cap.
3. A threadless cap as defined in claim 2, wherein said line of weakness is
20 configured such that a strip is formed when said skirt is being torn.
4. A threadless cap as defined in claim 3, wherein said tear stop prevents complete separation of said strip from a remainder of said cap.
- 25 5. A threadless cap as defined in claim 4, wherein said skirt includes a pull tab that is attached to said strip.
6. A threadless cap as defined in claim 5, wherein said strip extends partially around the perimeter of said cap.
- 30 7. A threadless cap as defined in claim 6, wherein at least a portion of said line of

weakness extends along said tension ring.

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8. A threadless cap as defined in claim 7, wherein said lid and said skirt are integrally formed.
9. A threadless cap as defined in claim 8, wherein said lid and said skirt are integrally formed by injection molding.
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10. A threadless cap as defined in claim 1, wherein said line of weakness includes a portion extending across said tension ring to reduce a retaining force exerted by said tension ring on the neck of the bottle when the line of tear propagating as a result of a manual pull applied on said skirt extends across said tension ring.
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11. A threadless cap for closing a potable liquid bottle, the potable liquid bottle having a neck with an upper edge defining a discharge opening, said threadless cap comprising:
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- a) a lid for overlying and sealingly engaging the upper edge;
 - b) said lid including a tension ring for retaining said cap on said neck, said tension ring having an inwardly extending rib for engaging the neck of the bottle;
 - c) a skirt depending from said lid, said skirt including a line of weakness facilitating a manual tear of said skirt;
 - d) said line of weakness including a portion extending across said tension ring to reduce a retaining force exerted by said tension ring on the neck of the bottle
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- when a tear line propagating as a result of a manual pull applied on said skirt extends across said tension ring.
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12. A threadless cap as defined in claim 11, wherein said line of weakness is configured such that a strip is formed when said skirt is being torn.
13. A threadless cap as defined in claim 12, including a tear stop at a location

intersecting the line of tear propagating as a result of a manual pull applied on said skirt, said tear stop preventing the line of tear to propagate beyond said tear stop.

- 5 14. A threadless cap as defined in claim 13, wherein said tear stop includes a thickened portion on said cap.
15. A threadless cap as defined in claim 14, wherein said tear stop prevents complete separation of said strip from a remainder of said cap.
- 10 16. A threadless cap as defined in claim 15, wherein said skirt includes a pull tab that is attached to said strip.
17. A threadless cap as defined in claim 16, wherein said strip extends partially around the perimeter of said cap.
- 15 18. A threadless cap as defined in claim 17, wherein at least a portion of said line of weakness extends along said tension ring.
- 20 19. A threadless cap as defined in claim 18, wherein said lid and said skirt are integrally formed.
20. A threadless cap as defined in claim 19, wherein said lid and said skirt are integrally formed by injection molding.
- 25 21. A closure system for a potable liquid bottle, the potable liquid bottle having a neck having an upper edge defining a discharge opening and an annular recessed area below the upper edge, the annular recessed area having an upper end portion and a lower end portion, said closure system comprising:
- 30 a) a threadless cap, having:
- i) a lid for overlaying and sealingly engaging the upper edge;

- 5 ii) a skirt depending from said lid, said skirt having a lower edge, said skirt having dimensions such that when said cap sealingly engages the upper edge of the neck, at least a portion of the lower edge of said skirt is located between the upper end portion and the lower end portion of the annular recessed area;
- 10 b) a protective sheath for application on said cap and on a portion of the neck of the bottle below the cap, said protective sheath being shrinkable to create a recessed zone within the annular recessed area adjacent the portion of the lower edge of said skirt located between the upper end portion and the lower end portion of the annular recessed area.
22. A closure system as defined in claim 21, wherein said sheath is heat shrinkable on said cap and on the portion of the neck of the bottle below the cap.
- 15 23. A closure system as defined in claim 22, wherein said sheath includes a line of weakness to facilitate tear and removal of said sheath after said sheath has been heat shrunk on said cap and on the portion of the neck of the bottle below the cap.
- 20 24. A closure system as defined in claim 22, wherein said skirt includes a line of weakness facilitating a manual tear of said skirt.
- 25 25. A closure system as defined in claim 24, including a pull tab on said skirt for initiating a tear of said skirt.
- 25 26. A closure system as defined in claim 25, wherein the portion of the lower edge of said skirt that is located between the upper end portion and the lower end portion of the annular recessed area includes the entirety of the lower edge of said skirt except said pull tab.
- 30 27. A closure system as defined in claim 24, wherein said line of weakness is configured such that a strip is formed when said skirt is being torn.

28. A closure system as defined in claim 27, including a tear stop at a location intersecting the line of tear propagating as a result of a manual pull applied on said skirt, said tear stop preventing the line of tear to propagate beyond said tear stop.
29. A closure system as defined in claim 28, wherein said tear stop includes a thickened portion on said cap.
30. A closure system as defined in claim 29, wherein said tear stop prevents complete separation of said strip from a remainder of said cap.
31. A closure system as defined in claim 30, wherein said strip extends partially around the perimeter of said cap.
32. A closure system as defined in claim 31, wherein said lid and said skirt are integrally formed.
33. A closure system as defined in claim 32, wherein said lid and said skirt are integrally formed by injection molding.
34. A closure system as defined in claim 24, wherein said lid includes a tension ring for retaining said cap on the neck of the bottle, said tension ring having an inwardly extending rib for engaging the neck of the bottle, said line of weakness including a portion extending across said tension ring to reduce a retaining force exerted by said tension ring on the neck of the bottle when a tear line propagating as a result of a manual pull applied on said skirt extends across said tension ring.
35. A water bottle, comprising:
- a) a neck having an upper edge defining a discharge opening;
 - b) an annular recessed area on said neck below said upper edge, said annular

recessed area having an upper edge portion and a lower edge portion;

c) a threadless cap, having:

i) a lid overlaying and sealingly engaging said upper edge;

ii) a skirt depending from said lid, said skirt having a lower edge, at least
5 a portion of said lower edge being located within said annular
recessed area between said upper edge portion and said lower edge
portion;

d) a protective sheath applied on said bottle, said protective sheath extending
over said cap and over a portion of said neck located below said cap, said
10 protective sheath forming a recessed zone overlaying said annular recessed
area and being adjacent to the portion of said lower edge of said skirt located
within said annular recessed area between said upper edge portion and said
lower edge portion.

15 36. A water bottle as defined in claim 35, wherein said sheath is heat shrunk on said
cap and on a portion of the neck of the bottle below said cap.

37. A water bottle as defined in claim 36, wherein said sheath includes a line of
weakness to facilitate tear and removal of said sheath.

20 38. A water bottle as defined in claim 35, wherein said skirt includes a line of
weakness facilitating a manual tear of said skirt.

25 39. A water bottle as defined in claim 38, including a pull tab on said skirt for
initiating a tear of said skirt.

40. A water bottle as defined in claim 39, wherein the portion of the lower edge of
said skirt that is located between said upper end portion and said lower end
portion includes the entirety of the lower edge of said skirt except said pull tab.

30 41. A water bottle as defined in claim 38, wherein said line of weakness is configured

such that a strip is formed when said skirt is being torn.

42. A water bottle as defined in claim 41, including a tear stop at a location intersecting the line of tear propagating as a result of a manual pull applied on said skirt, said tear stop preventing the line of tear to propagate beyond said tear stop.
43. A water bottle as defined in claim 42, wherein said tear stop includes a thickened portion on said cap.
44. A water bottle as defined in claim 43, wherein said tear stop prevents complete separation of said strip from a remainder of said cap.
45. A water bottle as defined in claim 44, wherein said strip extends partially around the perimeter of said cap.
46. A water bottle as defined in claim 35, wherein said lid and said skirt are integrally formed.
47. A water bottle as defined in claim 46, wherein said lid and said skirt are integrally formed by injection molding.
48. A water bottle as defined in claim 38, wherein said lid includes a tension ring for retaining said cap on said neck, said tension ring having an inwardly extending rib for engaging said neck, said line of weakness including a portion extending across said tension ring to reduce a retaining force exerted by said tension ring on said neck when a tear line propagating as a result of a manual pull applied on said skirt extends across said tension ring.
49. A threadless cap for a water bottle having a neck with an upper edge defining a discharge opening, the neck also including an annular recessed area below the

upper edge, said threadless cap comprising:

- a) a lid for overlying and sealingly engaging the upper edge of the bottle, said lid including a tension ring for retaining said cap on the neck of the bottle, said tension ring having an inwardly extending rib for engaging the neck of the bottle;
- b) a skirt depending from said lid, said skirt having a lower edge, a portion of said lower edge residing in the annular recessed area when said cap is applied on the bottle and said lid sealingly engages the upper edge of the bottle.

50. A threadless cap as defined in claim 49, wherein said skirt includes a line of weakness facilitating a manual tear of said skirt.

51. A threadless cap as defined in claim 50, including a pull tab on said skirt for initiating a tear of said skirt.

52. A threadless cap as defined in claim 51, wherein the portion of the lower edge of said skirt that is located between said upper end portion and said lower end portion includes the entirety of the lower edge of said skirt except said pull tab.

53. A threadless cap as defined in claim 52, wherein said line of weakness is configured such that a strip is formed when said skirt is being torn.

54. A threadless cap as defined in claim 53, including a tear stop at a location intersecting the line of tear propagating as a result of a manual pull applied on said skirt, said tear stop preventing the line of tear to propagate beyond said tear stop.

55. A threadless cap as defined in claim 54, wherein said tear stop includes a thickened portion on said cap.

56. A water bottle as defined in claim 55, wherein said tear stop prevents complete

separation of said strip from a remainder of said cap.

57. A threadless cap as defined in claim 56, wherein said strip extends partially around the perimeter of said cap.
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58. A threadless cap as defined in claim 49, wherein said lid and said skirt are integrally formed.
59. A threadless cap as defined in claim 58, wherein said lid and said skirt are integrally formed by injection molding.
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60. A threadless cap as defined in claim 50, wherein said lid includes a tension ring for retaining said cap on said neck, said tension ring having an inwardly extending rib for engaging said neck, said line of weakness including a portion extending across said tension ring to reduce a retaining force exerted by said tension ring on said neck when a tear line propagating as a result of a manual pull applied on said skirt extends across said tension ring.
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